

REMARKS

This application is a continued prosecution application under 37 C.F.R. § 1.53(d) of Applicants' copending application Serial No. 09/163,402, filed September 30, 1998.

Claims 1, 2, 4-8, 10-15 and 17-29 are now presented for examination. Claims 1, 2, 8, 13, 14, 15 and 20 have been amended to define still more clearly what Applicants regard as their invention, in terms which distinguish over the art of record. Claims 1, 13 and 20 are the only independent claims.

The abstract and the claims have been objected to by the Examiner in a telephone interview on June 25, 2001 in that (1) there is no antecedent basis for "control means", (2) there is no antecedent basis for the terms "non-exposure-operation" and "exposure-operation", and that the recitation of amplification by a total reflecting means and an output window is incorrect. The claims and the abstract have been reviewed and amended in view of these objections.

As amended by this supplemental preliminary amendment, Claim 1 has the feature of operating means operating the blower according to the state of electrical discharging from a discharging electrode. The operating means includes first means operating rotation of the blower in a stand-by state in which no laser gas is excited by the electrical discharging from the discharging electrode and thus no laser light is emitted whereas the device is in a condition to output the laser light and second means operating rotation of the blower in an in-operation state in which the laser gas is excited by the electrical discharging from the discharge electrode and the laser light is outputted. This feature of the invention is disclosed at least from line 3 of page 14 to line 15 of page 16 of the

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specification with respect to Fig. 5. The Abstract and Claims 13 and 20 have been similarly amended.

The recitations of amplification by the reflecting means and the output window have been changed in Claim 1 to "a total reflection mirror for totally reflecting laser light produced by the electrical discharging from said discharging electrode" and "an output window for partially reflecting the laser light and for outputting a portion of the laser light amplified between said total reflection mirror and said output window". Claims 13 and 20 have been similarly amended. With regard to the terms "non-exposure-operation", "exposure-operation" in Claim 13, these phrases are disclosed in the specification at lines 14-18 of page 7.

In view of the foregoing, it is believed that the abstract and the claims as amended by this supplemental amendment fully meet the requirements of 35 U.S.C. § 112.

With regard to the rejection of Claims 1 and 20 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,770,933 to Larson, et al. and the rejection of Claims 1, 2, 4 through 8, 10 through 15 and 17 through 29 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 4,611,327 to Clark, et al. in view of the Larson, et al. patent and U.S. Patent No. 5,383,217 to Uemura and the McKee publication in the Office Action of June 13, 2000, these claims are believed to be allowable in view of the remarks pertaining to the rejections in the Preliminary Amendment filed May 21, 2001 which are incorporated by reference herein.

A review of the art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the

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independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks and the remarks in the Preliminary Amendment filed May 21, 2001, Applicants respectfully request favorable consideration and favorable action on the merits.

Applicants' attorney, Steven E. Warner, may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,


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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADEIN THE ABSTRACT

In a gas laser device, a laser gas sealingly stored in a chamber is excited using a discharging electrode that is electrically discharged. Laser light produced by the electrical discharging is [amplified] totally reflected by a total reflection mirror. An output window [amplifies] partially reflects the laser light and outputs a portion of the laser light [amplified] reflected between the total reflection mirror and the output window. A blower circulates the laser gas within the chamber so that the laser gas passing an electrical discharging region of the discharging electrode is circulated in the chamber and is returned to the electrical discharging region of the discharging electrode. The [rotation of the] blower is [controlled] operated according to the state of electrical discharging from the discharging electrode. The blower [rotation control] operation includes [controlling] operating rotation of the blower in a stand-by state in which no laser gas is excited by the electrical discharging from said discharging electrode so that no laser light is emitted but the gas laser device is in a condition to [an] output [of] the laser light [is being prepared], and [controlling] operating rotation of the blower in an in-operation state in which the laser gas is excited by the electrical discharging from said discharge electrode and laser light is outputted.--.

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IN THE CLAIMS:

1. (Four Times Amended) A gas laser device, comprising:
 - a chamber for sealingly storing a laser gas therein;
 - a discharging electrode for exciting the laser gas through electrical discharging;
 - a total reflection mirror for [amplifying] totally reflecting laser light produced by the electrical discharging from said discharging electrode;
 - an output window for [amplifying] partially reflecting the laser light and for outputting a portion of the laser light [amplified] reflected between said total reflection mirror and said output window;
 - a blower for circulating the laser gas within said chamber, so that the laser gas passing an electrical discharging region of said discharging electrode is circulated in said chamber and is returned to the electrical discharging region of said discharging electrode;
 - and
 - [control] operating means for [controlling] operating said blower in accordance with a state of the electrical discharging from said discharging electrode, including first means for [controlling rotation of] operating the blower rotation in a stand-by state in which no laser gas is excited by the electrical discharging from said discharging electrode and thus no laser light is emitted whereas [an] the gas laser device is in a condition to output [of] the laser light [is being prepared], and second means for [controlling rotation of] operating the blower rotation in an in-operation state in which the laser gas is excited by the electrical discharging from said discharge electrode and the laser light is being outputted.

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2. (Four Times Amended) A gas laser device according to Claim 1, wherein said first [rotation control] means [controls] operates rotation of said blower when said gas laser device is in the stand-by state by stopping the blower.

8. (Four Times Amended) A gas laser device according to Claim 7, wherein said first [rotation control] means [controls] operates rotation of said blower when said gas laser device is in the stand-by state by stopping the blower.

13. (Four Times Amended) An exposure apparatus, comprising:

a laser light source having (i) a chamber for sealingly storing a laser gas therein, (ii) a discharging electrode for exciting the laser gas through electrical discharging, (iii) a total reflection mirror for [amplifying] totally reflecting laser light produced by the electrical discharging from said discharging electrode, (iv) an output window for [amplifying] partially reflecting the laser light and for outputting a portion of the laser light [amplified] reflected between said total reflection mirror and said output window, and (v) a blower for circulating the laser gas within said chamber so that the laser gas passing an electrical discharging region of said discharging electrode is circulated in said chamber and is returned to the electrical discharging region of said discharging electrode;

a main assembly for exposing a substrate to the laser light from said laser light source; and

[control] operating means for [controlling] operating said blower in accordance with a state of electrical discharging of said discharging electrode including first means for [controlling] operating rotation of the blower in a non-exposure-operating state in which no

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laser gas is excited by the electrical discharging from said discharging electrode and thus no laser light is emitted whereas [an] the exposure device is in a condition to output [of] the laser light [is being prepared], and second means for [controlling] operating rotation of the blower in an exposure state in which the laser gas is excited by electrical discharging from said discharging electrode and the laser light is being outputted.

14. (Three Times Amended) An apparatus according to Claim 13, wherein said [control] operating means further comprises means for increasing a rotation speed of said blower in response to a start of an exposure job in which the exposure operation is performed through said main assembly.

15. (Twice Amended) An apparatus according to Claim 14, wherein said [control] operating means stops the revolution of said blower before a start of the exposure job.

20. (Four Times Amended) A semiconductor device manufacturing method comprising:

sealingly storing a laser gas in a chamber;

exciting, using a discharging electrode, the laser gas through electrical discharge;

[amplifying] totally reflecting laser light produced by the electrical discharging from said discharging electrode by a total reflection mirror;

[amplifying] partially reflecting the laser light by an output window and outputting a portion of the laser light [amplified] reflected between said total reflection mirror and said output window;

circulating, using a blower, the laser gas within the chamber, so that the laser gas passing an electrical discharging region of the discharging electrode is circulated in the chamber and is returned to the electrical discharging region of the discharging electrode; and

[controlling] operating rotation of the blower in accordance with a state of electrical discharging from said discharging electrode including [controlling] operating rotation of the blower in a stand-by state in which no laser gas is excited by the electrical discharging from said discharging electrode and thus no laser light is emitted whereas [an] the chamber is in a condition to output [of] the laser light [is being prepared], and differently [controlling] operating rotation of the blower in an in-operation state in which the laser gas is excited by the electrical discharging from said discharge electrode and the laser light is being outputted.